

# Operation Manual



**2-Input, 1-Output Switcher Series:**  
**IN3552R - RGBHV Switcher**  
**IN3562R - VGA Switcher**





## Installation and Safety Instructions

### *For Models without a Power Switch:*

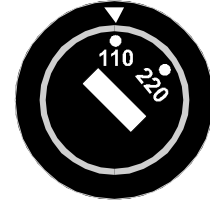
The socket outlet shall be installed near the equipment and shall be accessible.

### *For Models with 110 / 220V Power Selector:*

**Caution:** Before applying power to this unit, the voltage selector must be set to the appropriate setting to match local A/C line voltage. Improper setting of the voltage selector may cause damage to the unit and create a potential fire hazard.

The voltage selector is a round switch located next to the A/C power input connector which looks like this:

Using a straight slot screwdriver or small coin, rotate the selector to the correct position so that the arrow lines up with 110 or 220 as appropriate for local power line voltage as indicated in the chart below:



Local A/C Voltage	Voltage Selector Setting
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### *For all Models:*

No serviceable parts inside the unit. Refer service to a qualified technician.

### *For Models with Internal or External Fuses:*

For continued protection against fire hazard, replace only with same type and rating of fuse.

### *For IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:*

**Caution:** Double pole / neutral fusing.

### *For all Models with Integral Lithium Battery:*

**Caution:** Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



## Instructions d'installation et de sécurité

### *Pour les modèles sans interrupteur de courant:*

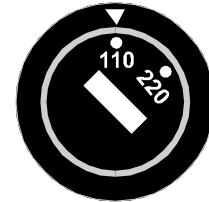
La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

### *Pour les modèles avec un sélecteur d'alimentation 110V/220V:*

**Attention:** Avant de connecter l'appareil au circuit d'alimentation, le sélecteur de courant doit être positionné sur la sélection appropriée correspondant au voltage du circuit de courant alternatif local. Une mauvaise sélection peut engendrer des dommages à l'appareil et créer un danger d'incendie.

Le sélecteur d'alimentation est un commutateur rond positionné près du connecteur d'alimentation. Il se représente comme suit:

A l'aide d'un tourne-vis plat ou d'une pièce de monnaie, le sélecteur peut être tourné dans la position adéquate en veillant que la flèche corresponde avec 110 ou 220, en fonction de la valeur du circuit de courant local. (Voir tableau ci-dessous)



Circuit local AC	Position Sélecteur
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### *Pour tout les modèles:*

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

### *Pour les modèles équipés de fusibles internes ou externes:*

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

### *Pour IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:*

**Attention:** Double pôle / fusible au neutre.

### *Pour tout les modèles avec une batterie au lithium interne:*

**Attention:** Danger d'explosion si la batterie est incorrectement remplacée. Ne remplacez la batterie qu'avec le même modèle, ou avec un modèle recommandé par le constructeur. Traitez les batteries usagées selon les instructions du fabricant, ou selon les normes écologiques en vigueur.



## Installations und Sicherheitshinweise

### Für Geräte ohne Netzschalter:

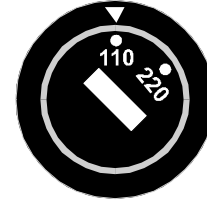
Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

### Für Geräte mit 110 / 220V Spannungswähler:

**Achtung:** Bevor Sie dem Gerät Spannung zuführen, muß der Spannungswähler entsprechend der Spannung des lokalen Wechselspannungsnetzes eingestellt werden. Die falsche Stellung des Spannungswählers kann eine Beschädigung des Gerätes und möglicherweise ein Feuer verursachen.

Der Spannungswähler ist ein runder Schalter in der Nähe der Netzeingangsbuchse mit folgendem Aussehen:

Drehen Sie den Wähler mit einem normalen Schraubenzieher oder einer kleinen Münze so, daß der Pfeil auf die 110 oder 220 zeigt, entsprechend der Spannung Ihres lokalen Netzes wie hier angezeigt:



Lokale Netzwechselspannung	Stellung des Spannungswählers
110 ~ 120 V	110
220 ~ 240 V	220

### Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

### Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

### Für IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

**Achtung:** Allpolige Absicherung

### Für alle Geräte mit eingebauter Lithium Batterie:

**Achtung:** Explosionsgefahr bei falschem Batterieeinsatz. Batterie nur ersetzen durch den gleichen oder entsprechenden Typ wie vom Hersteller empfohlen. Entsorgung verbrauchter Batterien nur nach den Anweisungen des Herstellers.



## Instalacion E Instrucciones de Seguridad

### Modelos Sin Interruptor:

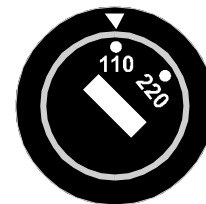
La conexión debe ser instalada cerca del equipo y debe ser accesible.

### Modelos con Selector de Voltaje de 110/220V:

**Precaución:** Antes de operar esta unidad, el selector de voltaje debe instalarse de forma que corresponda a la línea de voltaje local. Instalación inadecuada del selector de voltaje puede causar daño a la unidad y originar un incendio.

El selector de voltaje es un cambio vía redondo localizado cerca de la conexión eléctrica, como se ve en el dibujo:

Use un destornillador común o una moneda pequeña, mueva el selector a la posición correcta, de forma que las flechas indiquen 110 o 220 de acuerdo con el voltaje local, como está indicado a continuación.



Voltaje Local A/C	Selector de Voltaje
110 ~ 120 VAC	110
220 ~ 240 VAC	220

### Para Todos Los Modelos:

Dentro de la unidad, no hay partes para reparar. Llame un técnico calificado.

### Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

### Modelos IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

**Precaución:** Double Polo / Fusible Neutral.

### Modelos con Batería de Lithium Interna:

**Precaución:** Peligro de explosión si la batería es reemplazada incorrectamente. Reemplace solamente con la misma clase de batería, o una equivalente recomendada por el fabricante. Deseche las baterías usadas de acuerdo con las instrucciones del fabricante.

**CE COMPLIANCE**

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)

EN50082-1 (1992 and 1994), EN60950-92

**Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.**

**FCC COMPLIANCE**

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide against harmful interference when equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

## DESCRIPTION

The **IN3552R** and **IN3562R** are high performance analog video switchers featuring two inputs and one output. These switchers are designed to route high resolution source signals to an attached video projector, monitor, LCD panel or color printer. Users may select the desired input channel using the front panel channel select button or via remote control by using a wired remote, third-party control system, or any other device capable of providing a latching contact closure. The **IN3552R / IN3562R** switchers offer easy operation and the following features:

- ◆ **650 MHz or 500 MHz Video Bandwidth** – high performance units route ultra-high resolution video signals with no signal loss
- ◆ **Passive Design** - ensures compatibility with a wide range of video and audio signals
- ◆ **Front Panel Channel Selection Button** and LED Indicators
- ◆ **Remote Port** - allows for remote selection of input channel using contact closure. A status pin provides feedback to a control system to indicate which input is currently selected.
- ◆ **Monitor Emulation Switches (IN3562R only)** - for Input 1 and Input 2 can provide VGA or MAC monitor emulation for applications where a computer graphics card is connected directly to the switcher input.
- ◆ **Rack Mountable** – Units rack mount in a 1U rack space using the optional **IN9080** rack shelf. Two units will mount side-by-side on a single rack shelf. A single unit may be rack-mounted by using the **IN9080** Rack Shelf plus an **IN9088** Blank Panel.

## COMPATIBILITY

The **IN3552R** and **IN3562R** switchers are passive devices which will switch a wide variety of signals. While the units were primarily designed for use with high resolution RGB analog computer graphics type signals, they may also be used to switch Composite Video, S-Video (Y/C), Component Video, or audio signals. The **IN3552R** and **IN3562R** function very similarly, utilizing the same front control panel and switching circuitry. The main difference between the various models is the type of input/output connectors on the back panel and the number of discrete signal components for each input.

**IN3552R RGBHV Analog Video Switcher** - is a two input, one output switcher featuring a set of five BNCs for each input and output connection. The unit can switch five discrete signal components for each input and is compatible with analog computer video signals in any of the following formats: RGBHV, RGBS, RGSB, RsGsBs, and composite monochrome with sync. Since the **IN3552R** switches five discrete signal components simultaneously, it may also be employed as audio-follow-video switcher when used with composite, Y/C, component or RGBS signals.

**IN3562R VGA Switcher** - is a two input, one output switcher featuring 15-pin HD connectors for input and output connection. The **IN3562R** connects directly to VGA, S-VGA, and XGA computer graphics cards and monitors using standard 15-HD VGA extension cables. For applications where the computer graphics card will be connected directly to the switcher, monitor emulation dip switches are available which can emulate a VGA or MAC monitor (see page 5). The **IN3562R** has six discrete signal paths for six signal components and may be used with analog video signals in any of the following formats: RGBHVS, RGBHV, RGBS, RGSB, RsGsBs, and composite monochrome with sync. The switcher can be connected to MAC, SUN, SGI and 4 or 5 BNC workstations using input / output adapter cables, which are available in a variety of lengths (see list on page 2).

## INSTALLATION

This section offers step-by-step instructions for installing **IN3552R / IN3562R** switchers. A detailed application drawing showing all equipment connections is shown on the next page.

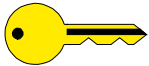
1. Connect both sources to the **IN3552R / IN3562R** input connectors.

**IN3552R:** An interface may be required for each computer video signal source in order to split off a signal for each local monitor, bring all signals into the RGBHV format, and amplify the signal to compensate for long input/output cable runs.

**IN3562R:** A 1x2 distribution amplifier (**IN3262 / IN3262D**) may be required at each computer in order to split off a signal for each the computer's local monitor, provide monitor emulation and amplify the signal to compensate for long input/output cable runs. If the computer video outputs are being connected directly to the switcher inputs, it may be necessary to set the **IN3562R** input termination switches to emulate a VGA or MAC monitor. Information on these dip switches is silk screened on the bottom of the unit and can also be found on page 5.

2. Connect the **IN3552R / IN3562R** output to the display device.
3. Apply AC power to the unit.

### KEY CONCEPT



*It is very important that all input / output connections be made utilizing high resolution coaxial cables. Proper cable selection is critical to overall system performance, especially when working with high frequency signals and/or long cable runs. The following cables are recommended for use with the **IN3552R / IN3562R** switchers.*

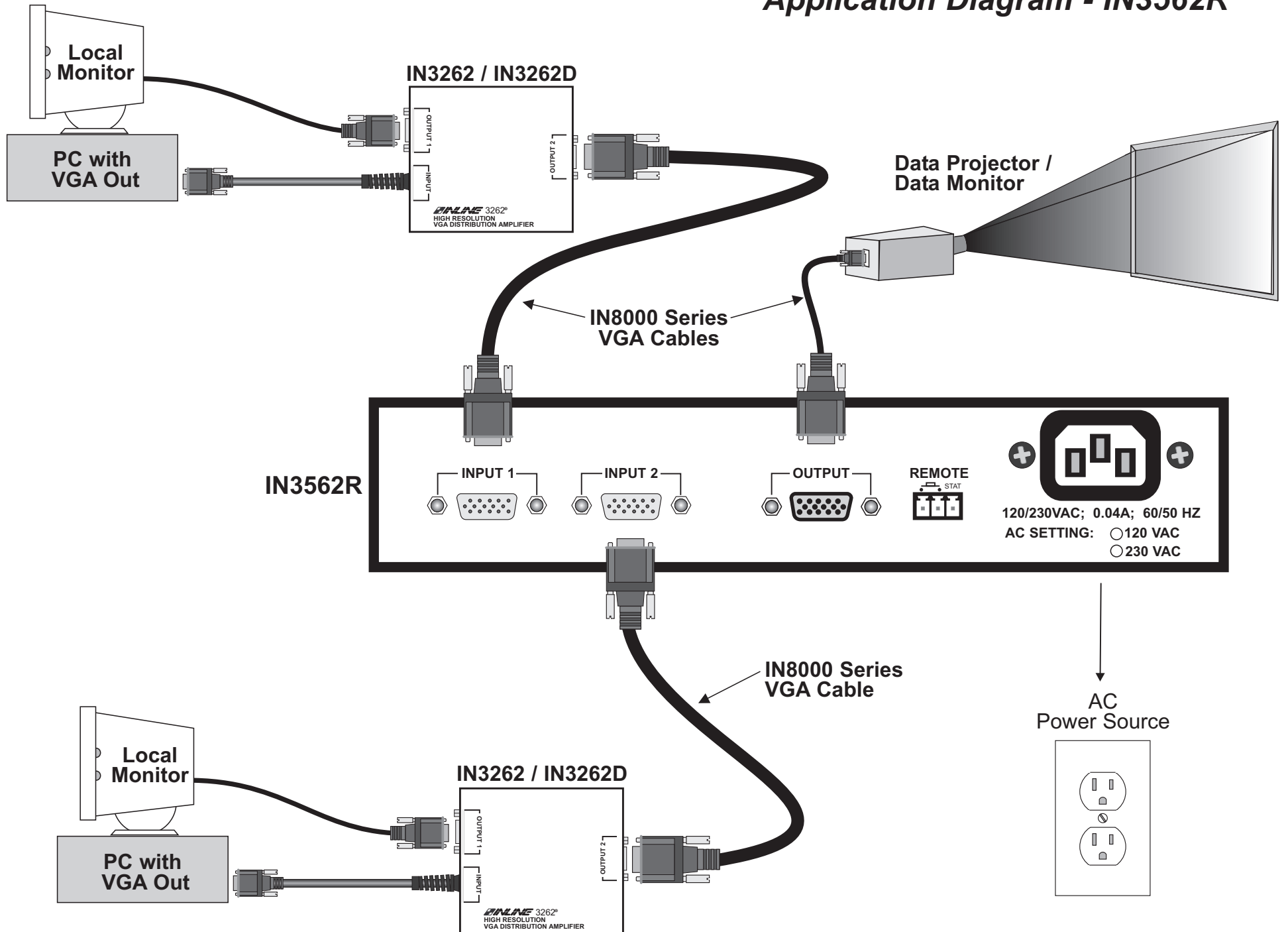
**IN3552R:** Use **IN7000-5, IN7100-5, IN7200-5, IN7300-5 Series** - 5 Conductor Cables, available in a variety of lengths from 6' to 250', terminated with male BNC connectors.

**IN3562R with VGA, MAC, SUN, SGI, 4&5-BNC computer graphics cards, monitors and data displays:** Use the input / output adapter cables as indicated in the chart below.

### IN3562R INPUT / OUTPUT ADAPTER AND EXTENSION CABLES

		VGA	MAC	SUN (13W3-RGBS)	SGI (13W3RGsB)	5-BNC (RGBHV/RGBS/RGsB)
<b>Input Cables</b>	<b>6' Long</b>	IN8006	IN9140	IN9142	IN9148	IN9048
	<b>12' Long</b>	IN8012				IN9046
	<b>25' Long</b>	IN8025	IN9144	IN9146	IN9150	IN9046-L25
	<b>50' to 250'</b>	IN8000 Series				IN9046-Lxx
<b>Output Cables</b>	<b>3' Long</b>	N/A	IN9141	IN9143	IN9149	
	<b>6' Long</b>	IN8006				IN9047
	<b>12' Long</b>	IN8012				IN9045
	<b>25' Long</b>	IN8025	IN9145	IN9147	IN9156	IN9045-L25
	<b>50' to 250'</b>	IN8000 Series				IN9045-Lxx

# Application Diagram - IN3562R



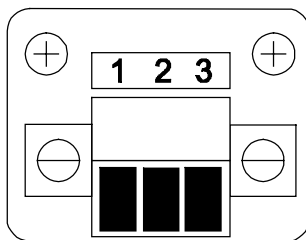
## OPERATION

### Input Selection

The **IN3552R / IN3562R** two input switchers provide a front panel button which may be used to select the desired input channel. Each time the **SELECT** button is pressed the unit toggles back and forth between Input 1 and Input 2 and the appropriate front panel LED indicator lights to show the current channel selection. The non-selected channel is terminated into 75 Ohms. The switcher automatically returns to the last selected channel if power is removed and reapplied to the unit. Input channels may also be selected remotely by using a wired remote or a third-party control system (see **Remote Control Operation** below for more details).

Since the **IN3552R / IN3562R** switchers are passive, they are also bi-directional, meaning that signals may pass backwards through the unit. In such an installation, a single source signal is hooked up to the **OUTPUT** connector and two display devices are attached to the **INPUT** connectors. When an input is selected, the source signal is routed to one of the attached display devices.

## REMOTE CONTROL OPERATION



<u>PIN</u>	<u>FUNCTION</u>
1	Input Select
2	Ground
3	Status

The **IN3552R / IN3562R** switchers have a **REMOTE** port, a 3-pin captive screw connector which allows the units to be remotely controlled and also provides feedback to indicate which input is currently selected. Input 1 or Input 2 can be selected through the remote port by providing a latching contact closure between the pin 1 and pin 2 on the **REMOTE** jack. Opening or closing the contact closure on the **REMOTE** jack causes the unit to select the opposite input. The front panel switch and the contact closure switch work independently. Therefore, an open or closed status between pins 1&2 on the **REMOTE** port could select either Input 1 or Input 2 depending on the current position of the front panel switch as indicated in the chart below.

	<b>Pin 1 &amp; Pin 2 - No Connection</b>	<b>Pin 1 Grounded to Pin 2</b>
<b>Front Panel Button - Out</b>	Input 2 Selected	Input 1 Selected
<b>Front Panel Button - Depressed</b>	Input 1 Selected	Input 2 Selected

### Status Pin (Pin 3) -

The **REMOTE** connector status pin can be used to provide feedback to a control system to indicate whether Input 1 or Input 2 is currently selected. The status pin will be high or low depending on the current input:

**Pin 3 High (5V)** - Input 2 is currently selected

**Pin 3 Low (0V)** - Input 1 is currently selected



## Contact Closure Devices

Any device capable of providing a latching contact closure may be used to control the **IN3552R / IN3562R**. Several contact closure type control devices are available:

**IN6901 / IN6902 RS-232 to Contact Closure Converters** - allow **IN3500 Series** switchers and other **INLINE** devices with contact closure control ports to be controlled by RS-232 sources such as control systems and computer serial ports.

**Control System** - many control systems are capable of providing contact closures.

**Remote Control Panel** - a custom remote panel or remote switch may be fabricated by the installer.

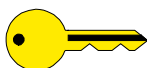
## Disable Front Panel Input Selector

The front panel input selector can be disabled for applications where the switcher will only be controlled through the remote port. To disable or enable the front panel input selector, set Jumper 7 (located inside the unit) as follows:

**J7 Open:** Front Panel Input Selector Enabled (factory default)

**J7 Closed:** Front Panel Input Selector Disabled

### KEY CONCEPT



*In order to set Jumper 7, the **IN3552R / IN3562R** case must be opened. The procedure for opening the case and location of jumper 7 are indicated on page 6. **This procedure should only be done by a qualified technician in a static-free environment. Failure to follow proper procedures could result in damage to the unit or electric shock.***

When the front panel selector is disabled, the remote port always functions in the following manner (it makes no difference how the front panel selector is set):

**Pins 1 and 2 open:** Input 2 Selected

**Pin 1 grounded to Pin 2:** Input 1 Selected

## MONITOR EMULATION (IN3562R ONLY)

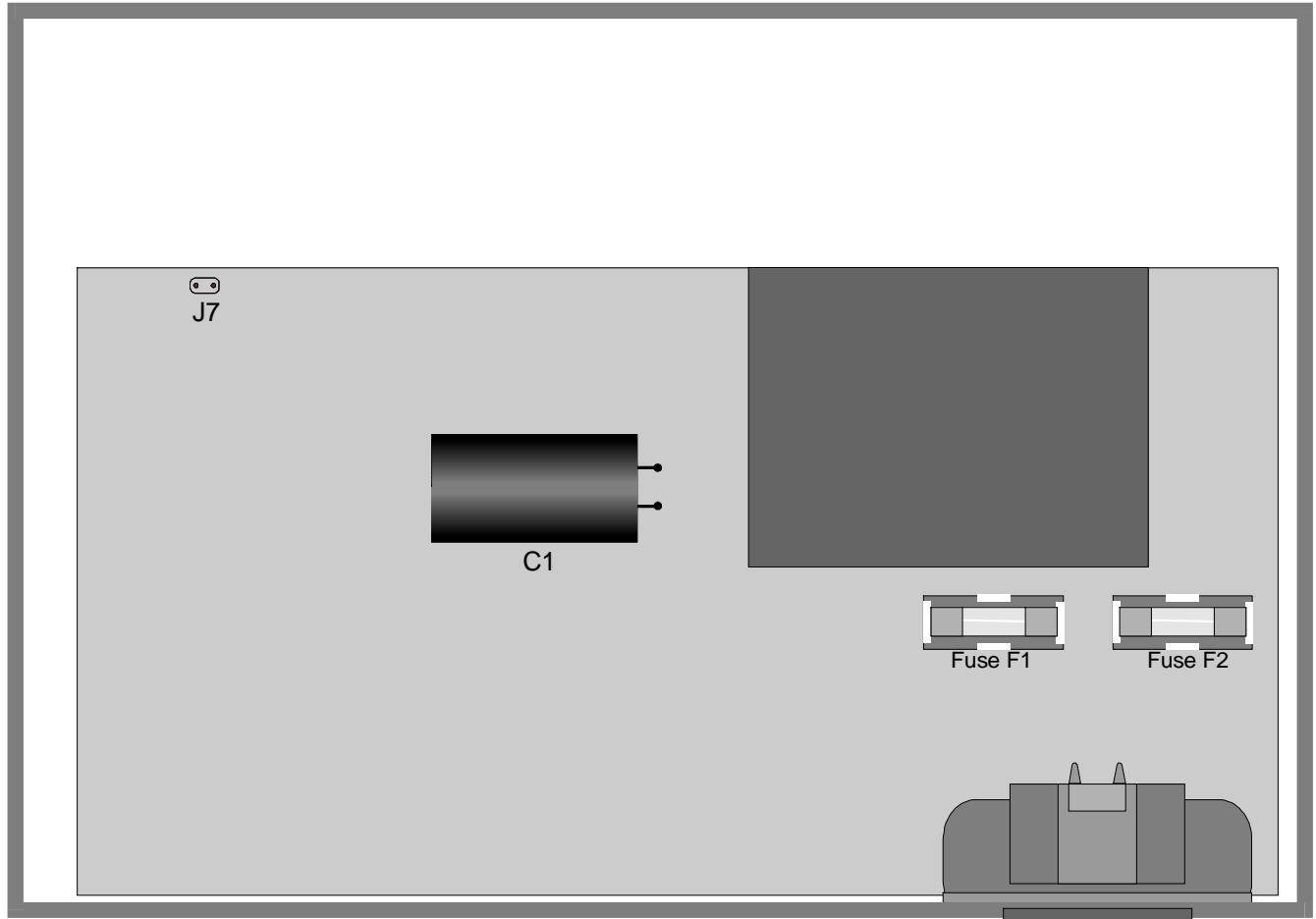
Some computer graphics cards must be connected to a local monitor in order to output a signal or select an appropriate resolution. In order to ensure proper initialization of the graphics card at computer boot up, a local monitor should be connected to each computer. If that is not practical, then the **IN3562R** monitor emulation dip switches (located on the bottom of the switcher) should be set to the appropriate settings for each input as indicated in the chart below.

Monitor Emulation	Input 1	Input 2
VGA Color Monitor	Dipswitch 1 - On	Dipswitch 4 - On
Apple 13/14" RGB Monitor	Dipswitch 1 - On	Dipswitch 4 - On
Apple 2-Page Mono	Dipswitch 3 - On	Dipswitch 6 - On
Apple Portrait Monitor	Dipswitch 2 & 3 - On	Dipswitch 5 & 6 - On
Apple 21s Color Monitor	Dipswitch 1, 2 & 3 - On	Dipswitch 4, 5 & 6 - On

When using a multiscan or other MAC monitor not shown in the chart with most newer Apple Macintosh computers, the Apple 13"/14" RGB monitor emulation settings will initialize the video card. The desired resolution may then be selected using the Chooser menu.

## INTERNAL FUSES

The **IN3552R / IN3562R** switchers contain two internal fuses. If power is applied to the unit and neither of the front panel LEDs is illuminated, these fuses may be blown. Open the case as described below, locate the two fuses as indicated in the diagram below and replace blown fuses as required with new 200mA / 250V fuses.



**Caution:** *The case opening procedure should only be done by a qualified technician in a static-free environment. Failure to follow proper procedures could result in damage to the unit or electric shock.*

### Case Opening Procedure:

1. Remove power from the unit.
2. Loosen and remove the four case screws on the sides of the unit.
3. Lift off the top half of the **IN3552R / IN3562R** case. **Capacitor C1 may store an electrical charge even when the unit is powered down. Take care not to touch this component.**

### Case Closing Procedure:

Replace the top case and tighten the four case screws.

## SPECIFICATIONS

	<b>IN3552R RGBHV Switcher</b>	<b>IN3562R VGA Switcher</b>
<b>Inputs</b>		
Connector type	5 BNC Female	15 Pin HD Male
Number of Inputs	2 Inputs	2 Inputs
Maximum Signal Components per Input	5	6
Signal Compatibility	RGBHV, RGBS, RGSB, RsGsBs, Monochrome with Sync, Composite Video, Y/C, Component Video, Audio	RGBS, RGSB, RsGsBs, RGBHV, RGBHVS Monochrome with Sync, Composite Video, Y/C, Component Video, Audio
<b>Output</b>		
Connector type	5 BNC Female	15 Pin HD Female
Bandwidth	650 MHz .7Vp-p input signal @ - 3dB	500 MHz .7Vp-p input signal @ - 3dB
Isolation	60 dB @ 50 MHz    55 dB @ 75 MHz    50 dB @ 100 MHz	
Switching Time	2.5 mSec Typical	
<b>Power</b>		
Voltage	120/230 VAC; 60/50 Hz - Set at Factory	
Consumption	10 Watts	
<b>Dimensions</b>		
Size	Height: 1.65" / 4.2cm    Width: 8.5" / 21.6cm    Depth: 6" / 15.2cm	
Product Weight	2.2 lbs. / 1.0 Kg	
Shipping Weight	4 lbs. / 2 Kg	
<b>Regulatory Approval</b>		
Safety	UL 1950, 3 <sup>rd</sup> Ed.; CE: EN60950-92; CAN/CSA-22.2 No. 950 3 <sup>rd</sup> Ed.	
EMI / ESD	FCC class A; CE: EN50081-1, EN55022, EN50082-1	

Parts Included	IN3552R	IN3562R
	AC Power Cable (U.S. Only) Operations Manual	AC Power Cable (U.S. Only) Operations Manual
Optional Accessories		
<b>Rack Mounting Equipment</b>	<b>IN9080 Rack Shelf</b> – Holds Two Units Side-By-Side <b>IN9088 Blank Panel</b> – Fills empty space when using <b>IN9080</b> Rack Shelf with only one <b>IN3552R</b> or <b>IN3562R</b> switcher.	

## TROUBLESHOOTING

### The display device connected to the switcher output has a bad/scrambled image.

**Solution 1:** The display device connected to the output of the switcher may not be compatible with the computer's video output. VGA / SVGA / XGA / SXGA graphics cards operate at multiple resolutions and refresh rates with newer modes such as 1920 x 1400 running as high as 79KHz! Check the operation manual on both the computer graphics card and the display device to ensure that they are compatible.

**Solution 2:** The RGB, VGA, or MAC input or output cable may have a bad sync line. Try running the sync through another cable.

### The unit does not pass any signals.

**Solution:** Verify that the unit is getting power by checking the front LEDs. If no LED is on, the AC power source may be faulty or the unit may have an internal problem. Check the two internal 200mA fuses (see Page 6).

### When controlling the switcher through the REMOTE CONTROL port, Input 2 can be selected for an instant, but then the unit quickly switches back to Input 1.

**Solution:** The control system may be providing a momentary contact closure. The IN3552R/IN3562R require a latching closure to select Input channel 2.

### When hooking a MAC Quadra computer directly to the IN3562R input, the computer is booting up in the 13" RGB monitor resolution (640 X 480). How can the computer be forced to boot in the 21" mode?

**Solution:** Use an IN2076 distribution amplifier to split the signal between the local monitor and the switcher input. The computer will see the 21" local monitor attached to the IN2076 loop-through connector and will boot up in that high resolution mode.

## WARRANTY

- ◆ INLINE warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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